Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Original) A method in a data processing system for generating coverage data during execution of code in the data processing system, the method comprising:

responsive to executing an instruction in the code by a processor in the data processing system, determining whether an access indicator is associated with the instruction; and

if the access indicator is associated with the instruction, changing, by the processor, a state of the access indicator when the instruction is executed, wherein coverage data is generated during execution of the code by the processor.

2.   (Original) The method of claim 1, wherein the changing step comprises:

receiving a signal at an instruction cache in the processor from a processor unit in the processor; and

responsive to receiving the signal, changing the state of the access indicator by the instruction cache.

3.   (Currently amended) The method of claim 2, wherein ~~the processor unit is one of a completion buffer and a processor functional unit~~ the instruction is dispatched to one of a plurality of different execution units for execution and the signal is received from a completion buffer when the execution of the instruction has occurred.

4.   (Original) The method of claim 1 further comprising:

marking selected instructions in the code for generating the coverage data by associating access indicators with selected instructions in the code.

5.   (Currently amended) The method of claim [[1]] 2, wherein instructions in the instruction cache are located in different positions within the instruction cache and wherein the signal includes an identification of a position in the instruction cache for the instruction.

6.   (Original) The method of claim 1, wherein the access indicator is located in a field in the instruction.

7.   (Original) The method of claim 1, wherein the access indicator associated with the instruction is located in a shadow memory.

8.   (Original) The method of claim 1, wherein the access indicator associated with the instruction is located in a page table.

9.   (Original) The method of claim 1, wherein the access indicator is an instruction access indicator.

10.   (Currently amended) ~~The method of claim 1~~ A method in a data processing system for generating coverage data during execution of code in the data processing system, the method comprising:

  responsive to executing an instruction in the code by a processor in the data processing system, determining whether an access indicator is associated with the instruction; and

  if the access indicator is associated with the instruction, changing, by the processor, a state of the access indicator when the instruction is executed, wherein coverage data is generated during execution of the code by the processor, wherein executed instructions in the code have set access indicators set when the state of the access indicators associated with the executed instructions are changed, while unexecuted instructions have unset access indicators because the state of the unset access indicators remain unchanged.

11.   (Original) The method of claim 1, wherein access indicators are associated with every instruction within the code.

12.   (Original) The method of claim 1, wherein access indicators are associated only with subroutines within the code.

13.   (Original) A data processing system comprising:

  an instruction cache, wherein the instruction cache receives instructions and marks an instruction as executed in response to detecting a signal indicating that the instruction has been executed; and

  a processor unit, wherein the processor unit generates the signal when the instruction has completed execution.

14.   (Currently amended) The data processing system of claim 13, wherein an instruction access indicator associated with the instruction is set to [[make]] mark the instruction as executed.

15. (Currently amended) ~~The data processing system of claim 14~~ A data processing system comprising:

an instruction cache, wherein the instruction cache receives instructions and marks an instruction as executed in response to detecting a signal indicating that the instruction has been executed; and a processor unit, wherein the processor unit generates the signal when the instruction has completed execution, wherein an instruction access indicator associated with the instruction is set to mark the instruction as executed and wherein the instruction access indicator is located in one of a field in the instruction, a shadow memory, or a page table.

16. (Original) The data processing system of claim 14, wherein the processor unit is one of a completion buffer, a processor functional unit executing the instruction, or a dispatcher.

17. (Original) A data processing system for generating coverage data during execution of code in the data processing system, the data processing system comprising:

determining means, responsive to executing an instruction in the code by a processor in the data processing system, for determining whether an access indicator is associated with the instruction; and changing means, if the access indicator is associated with the instruction, for changing, by the processor, a state of the access indicator when the instruction is executed, wherein coverage data is generated during execution of the code by the processor.

18. (Original) The data processing system of claim 17, wherein the changing means comprises:
receiving means for receiving a signal at an instruction cache in the processor from a processor unit in the processor; and
means, responsive to receiving the signal, for changing the state of the access indicator by the instruction cache.

19. (Currently amended) The data processing system of claim 18, wherein ~~the processor unit is one of a completion buffer and a processor functional unit~~ the instruction is dispatched to one of a plurality of different execution units for execution and the signal is received from a completion buffer when the execution of the instruction has occurred.

20. (Original) The data processing system of claim 17 further comprising:
marking means for marking selected instructions in the code for generating the coverage data by associating access indicators with selected instructions in the code.

21.   (Currently amended) The data processing system of claim [[17]] 18, wherein instructions in the instruction cache are located in different positions within the instruction cache and wherein the signal includes an identification of a position in the instruction cache for the instruction.

22.   (Original) The data processing system of claim 17, wherein the access indicator is located in a field in the instruction.

23.   (Original) The data processing system of claim 17, wherein executed instructions in the code have set access indicators set when the state of the access indicators associated with the executed instructions are changed, while unexecuted instructions have unset access indicators because the state of the unset access indicators remain unchanged.

24.   (Currently amended) The data processing system of claim 17, wherein ~~access indicators are associated with every instruction within the code~~ wherein the access indicator associated with the instruction is located in at least one of a shadow memory and a page table.

25.   (Original) The data processing system of claim 17, wherein access indicators are associated only with subroutines within the code.

26.   (Currently amended) A computer program product in a computer ~~readable~~ recordable-type medium for generating coverage data during execution of code in the data processing system, the computer program product comprising:

        first instructions, responsive to executing an instruction in the code by a processor in the data processing system, for determining whether an access indicator is associated with the instruction; and

        second instructions, if the access indicator is associated with the instruction, for changing, by the processor, a state of the access indicator when the instruction is executed, wherein coverage data is generated during execution of the code by the processor, wherein executed instructions in the code have set access indicators set when the state of the access indicators associated with the executed instructions are changed, while unexecuted instructions have unset access indicators because the state of the unset access indicators remain unchanged.

27.   (Original) The computer program product of claim 26, wherein the second instructions comprises:

first sub-instructions for receiving a signal at an instruction cache in the processor from a processor unit in the processor; and

second sub-instructions, responsive to receiving the signal, for changing the state of the access indicator by the instruction cache.

28. (Original) The computer program product of claim 26, wherein instructions in the instruction cache are located in different positions within the instruction cache and wherein the signal includes an identification of a position in the instruction cache for the instruction.